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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,230	10/31/2006	Helmuth Sachsenmaier	7395-000076/US/NP	6949
27572 7590 11/04/2008 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER LE, DAVID D	
			ART UNIT 3655	PAPER NUMBER
			MAIL DATE 11/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,230	Applicant(s) SACHSENMAIER, HELMUTH	
	Examiner David D. Le	Art Unit 3655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/31/06, 08/22/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the first Office action on the merits of Application No. 10/590,230, filed on 31 October 2006. Claims 6-22 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Copy of Foreign Priority Document, received on 08/22/06
 - Information Disclosure Statement, received on 08/22/06
 - Information Disclosure Statement, received on 10/31/06
 - Declaration and Power of Attorney, received on 10/31/06

Drawings

3. The drawings are objected to because of the following informalities:
 - Fig. 2, reference number “31” pointing to the universal joints on shaft element 22 should be changed as --3'--, see paragraph [0022].
 - Fig. 2, reference number “51” pointing to the universal joints on shaft element 5 should be changed as --5'--, see paragraph [0022].

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it exceeds 150 words and contains the legal phraseology "means". Correction is required. See MPEP § 1826.

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 13 recites the limitation "a speed reduction gearset". The present specification does not appear to provide proper antecedent basis for this claimed limitation.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the first drive shaft". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 6-8, 11-15 and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 3,963,085 to Vinton (hereinafter referred to as Vinton).

Claims 6-8, 11-15 and 17-20:

Vinton (Fig. 1; column 2, line 45 - column 7, line 25) discloses a drive train comprising:

- An engine (i.e., Fig. 1, element 12);
- A driven front axle (i.e., Fig. 1, element 31);
- A driven rear axle (i.e., Fig. 1, element 27);
- A front drive shaft (i.e., Fig. 1, element 28) leading to the front axle;
- A rear drive shaft (i.e., Fig. 1, element 24) leading to the rear axle;
- A transfer case (i.e., Fig. 1, element 21) adapted to be coupled to a transmission block and including a drive through shaft (i.e., Fig. 1, element 23) having a first end adapted to be drivingly connected to the transmission block and a second end operatively fixed for rotation with the rear drive shaft;
- A first friction coupling (i.e., Fig. 1, element 46) selectively drivingly interconnecting the drive through shaft and the front drive shaft;
- A second friction coupling (i.e., Fig. 1, element 38) provided at the rear axle to regulate the torque transferred to the rear axle;
- A control device (i.e., Fig. 1, element 49) to regulate the magnitude of torque transferred by the first and second friction couplings;

- Wherein each of the first and second friction couplings includes substantially similar actuators (i.e., Fig. 1, elements 53 and 51) being controlled by the control device;
- Wherein the second friction coupling is connected drivewise to the rear drive shaft, and to a differential (i.e., Fig. 1, element 26) of the rear axle;
- Wherein the first and second couplings include identical components (i.e., Fig. 1);
- A parking lock (i.e., Fig. 1, element 47) positioned downstream from the second friction coupling in force-flow direction;
- Wherein the parking lock is in driving engagement with the speed reduction gearset (i.e., Fig. 1, being gear elements 42, 43, 44);
- Wherein the control device is in communication with a vehicle braking control device (i.e., Fig. 1, being a combination of elements 58 and 52);
- Wherein each of the actuators includes an articulated jack coupled to a ramp ring (i.e., Fig. 1);
- Wherein the transfer case includes a housing containing the first friction coupling and a speed reduction gearset, the transfer case housing including a pair of coaxially aligned apertures through which the drive through shaft extends (i.e., Fig. 1); and
- Wherein the drive through shaft is a monolithic component (i.e., Fig. 1).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 9, 10, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vinton in view of U. S. Patent No. 5,701,247 to Sasaki (hereinafter referred to as Sasaki).**

Claims 9, 10, 21 and 22:

Vinton discloses the limitations as set forth above. Regarding claims 9, 10, 21 and 22, Vinton lacks:

- Wherein the second friction coupling is positioned in a housing fixed to a housing of the differential and the rear axle; and
- Wherein the second friction coupling housing is formed as one-piece with the differential and the rear axle housing.

Sasaki (i.e., Fig. 1; column 5, line 53 – column 6, line 53), on the other hand, discloses a drive train comprising:

- An engine (i.e., Fig. 1, element 1);
- A driven front axle (i.e., Fig. 1);

- A driven rear axle (i.e., Fig. 1);
- A front drive shaft (i.e., Fig. 1, element 8) leading to the front axle;
- A rear drive shaft (i.e., Fig. 1, element 3) leading to the rear axle;
- A transfer case (i.e., Fig. 1, element 7) adapted to be coupled to a transmission block;
- A first friction coupling (i.e., Fig. 1, element 14);
- A second friction coupling (i.e., Fig. 1, element 13) provided at the rear axle to regulate the torque transferred to the rear axle;
- A control device (i.e., Fig. 1, element 18) to regulate the magnitude of torque transferred by the first and second friction couplings; and
- Wherein the second friction coupling housing is formed as one-piece with the differential and the rear axle housing (i.e., Fig. 1).

Since all the claimed elements were known in the prior art, one skilled in the art could/would have rearranged the elements as claimed, such that the second friction coupling housing is formed as one-piece with the housing of the differential and the rear axle assembly, by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vinton in view of U. S. Patent No. 5,404,301 to Slicker (hereinafter referred to as Slicker).

Claim 16:

Vinton discloses the limitation as set forth above. Regarding claim 16, Vinton lacks sensors in communication with the control device and operable to output signals indicative of the position of the actuators.

Slicker (i.e., Fig. 6; column 5, lines 3-33), however, discloses a drive train comprising:

- An engine (i.e., Fig. 6, element 12);
- A friction coupling (i.e., Fig. 6, element 10);
- An actuator (i.e., Fig. 6, element 22) for actuating the friction coupling (10); and
- A position sensor (i.e., Fig. 6, element 70) for detecting movement of the actuator (22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Vinton to include a position sensor for each of the actuators, in view of Slicker, in order to effectively and accurately control the operation of the friction couplings.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bowen (U. S. Patent No. 7,044,880) teaches a torque distributing differential assembly, as shown in Fig. 6.
- Matsuno (U. S. Patent No. 6,878,085) teaches a power distribution control apparatus, as shown in Fig. 1.
- Sola et al. (U. S. Patent No. 6,561,331) teaches a transmission unit having a clutch actuator position sensor 55, as shown in Fig. 1.
- Suzuki et al. (U. S. Patent No. 4,609,064) teaches drive system, as shown in Fig. 2.
- Suzuki (U. S. Patent No. 4,538,700) teaches a drive system, as shown in Fig. 2.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 571-272-7092. The examiner can normally be reached on Mon-Fri (0900-1730).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3655

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David D. Le/
Primary Examiner, Art Unit 3655
10/30/2008

ddl